AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1-56. (Cancelled)

57. (Original) An apparatus for sensing a remote object, the apparatus comprising:

a receiver comprising J receive elements, wherein each of the J receive elements receives a carrier signal from the remote object, and provides a corresponding one of J element signals;

a receiver signal generator configured to generate J statistically independent chip sequences, wherein each chip sequence comprises a plurality of chips each having a random phase; and

a modulator configured to modulate the J element signals with a corresponding one of the J statistically independent chip sequences to generate J modulated signals, wherein each modulated signal comprises a plurality of chips each having a random phase.

58. (Original) The apparatus of claim 57, further comprising a processor to perform a signal comparison for a direction of interest.

59. (Original) The apparatus of claim 58, wherein the processor comprises:

a signal combiner configured to combine the modulated signals to form a resultant signal; and

a correlator configured to compare the resultant signal and a predicted received signal.

60. (Original) The apparatus of claim 57, wherein the modulator comprises:

a storage element configured to store snapshots of the element signals and output the stored snapshots multiple times; and

a processing element configured to randomize phases of the J stored snapshots and to perform signal comparison for the direction of interest.

61. (Original) The apparatus of claim 60, wherein the processing element comprises:

a signal combiner configured to combine the stored snapshots to form a resultant signal; and

a correlator configured to compare the resultant signal and a predicted received signal.

62. (Original) A method for sensing a remote object comprising:

receiving a carrier signal from the remote object in each of J receive elements, and wherein each of the J receive elements provides a corresponding one of J element signals;

generating J statistically independent chip sequences, wherein each chip sequence comprises a plurality of chips each having a random phase; and

modulating each of the J element signals with a corresponding one of the J statistically independent chip sequences, to generate J adjusted signals, wherein each adjusted signal comprises a plurality of chips each having a random phase.

63. (Original) The method of claim 62, further comprising performing signal comparison on the adjusted signals for a direction of interest.

64. (Original) The method of claim 63, wherein performing signal comparison comprises:

combining the adjusted signals to form a resultant signal; and

performing signal comparison between the resultant signal and a predicted signal.

65. (Original) The method of claim 62 further comprising:

storing snapshots of the element signals;

outputting the stored snapshots multiple times; and

performing signal comparison on the stored snapshots for a direction of interest.

66. (Original) The method of claim 65, wherein performing signal comparison comprises:

combining the stored snapshots to form a resultant signal; and

performing signal comparison between the resultant signal and a predicted signal.

67-68. (Canceled)

69. (Original) An apparatus for detecting a remote object, the apparatus comprising:

a plurality of receive elements to receive a carrier signal to form a plurality of element signals, the carrier signal arriving from a remote object;

a receiver signal modulator to randomly chip the plurality of element signals to form adjusted signals;

a processing element configured for a direction of interest to perform signal comparison as a function of the adjusted signal.

70. (Original) The apparatus of claim 69, wherein the processing element comprises:

a signal combiner configured to combine the adjusted signals to form a resultant signal; and

a correlator configured to compare the resultant signal and a predicted received signal.

71. (Original) An apparatus for detecting a remote object, the apparatus comprising:

a plurality of receive elements to receive a carrier signal from the remote object to form a plurality of element signals;

a storage element configured to store a snapshot of each of the plurality of element signals and output the snapshots; and

a processing element configured to randomly phase chip the stored snapshots and to perform signal comparison for a direction of interest.

72. (Original) The apparatus of claim 71, wherein the processing element comprises:

a receiver modulator configured to randomly phase chip the stored snapshots to form adjusted signals;

a signal combiner configured to combine the adjusted signals to form a resultant signal;

a correlator configured to compare the resultant signal and a predicted received signal.

73. (Canceled)

74. (Currently amended) ~~The~~ A method ~~of claim 73~~ for sensing a remote object comprising:

receiving a carrier signal from the remote object in a plurality of receive elements to form a plurality of element signals;

randomizing phases of the element signals to form adjusted signals, wherein randomizing comprises random phase chipping the element signals to form adjusted signals; and wherein performing signal comparison comprises combining the adjusted signals to form a resultant signal and performing signal comparison between the resultant signal and a predicted received signal to form a correlated signal; and

performing signal comparison for a direction of interest as a function of the adjusted signals.

75. (Original) A method for detecting a remote object comprising:

receiving a carrier signal from a remote object in a plurality of receive elements to form a plurality of receive element signals;

generating a plurality of random phase modulation signals; and

phase-modulating each the plurality of receive element signals with a corresponding one of the plurality of random phase modulation signals to form a plurality of phase-modulated signals.

76. (Original) The method of claim 75, wherein the random phase modulation signals are uncorrelated random phase signals.

77. (Original) The method of claim 75, further comprising combining the plurality of phase-modulated signals into a combined signal.

78. (Original) The method of claim 77, wherein combining comprises summing the plurality of phase-modulated signals into the combined signal.

79. (Original) The method of claim 77, further comprising detecting the carrier signal from the combined signal.

80. (Original) The method of claim 79, further comprising extracting location information from the detected carrier signal.

81. (Original) The method of claim 77, further comprising

generating an expected signal; and

correlating the combined signal with the expected signal to form a correlation signal.

82. (Original) The method of claim 81, wherein generating an expected signal comprises generating the expected signal as a function of the plurality of phase modulation signals.

83. (Original) The method of claim 81, wherein generating the expected signal comprises generating the expected signal from a particular direction.

84. (Original) The method of claim 83, wherein generating the expected signal comprises generating a plurality of expected signals from a plurality of directions; and wherein correlating the combined signal comprises correlating the combined signal with each of the plurality of expected signals from a plurality of directions to form a plurality of correlation signals.

85. (Original) The method of claim 84, further comprising determining a location of the remote object using the plurality of correlation signals.

86. (Original) The method of claim 81, wherein correlating the combined signal with the expected signal comprises cross-correlating the combined signal with the expected signal to form a cross-correlation signal.

87. (Original) The method of claim 81, further comprises

storing the correlation signal in a correlation signal memory; and

analyzing the correlation signal to determine a location of the remote object.

88. (Original) A receiver for detecting a remote object comprising:

a plurality of receive elements, each receiving a carrier signal from a remote object to form a plurality of receive element signals;

a modulation signal generator to generate a plurality of random phase modulation signals; and

a signal modulator to phase-modulate each of the plurality of receive element signals with a corresponding one of the phase modulation signals to form a plurality of phase-modulated signals.

89. (Original) The receiver of claim 88, wherein the phase modulation signals are uncorrelated random phase signals.

90. (Original) The receiver of claim 88, further comprising a signal combiner to combine the plurality of phase-modulated signals into a combined signal.

91. (Original) The receiver of claim 90, wherein the signal combiner sums the plurality of phase-modulated signals into the combined signal.

92. (Original) The receiver of claim 90, comprising a detector to detect the carrier signal from the combined signal.

93. (Original) The receiver of claim 92, comprising a signal processor for extracting location information from the detected carrier signal.

94. (Original) The receiver of claim 90, further comprising

a receiver calculator to generate an expected signal; and

a signal correlator to correlate the combined signal with the expected signal to form a correlation signal.

95. (Original) The receiver of claim 94, wherein the receiver calculator generates the expected signal as a function of the plurality of phase modulation signals.

96. (Original) The receiver of claim 94, wherein the receiver calculator generates the expected signal from a particular direction.

97. (Original) The receiver of claim 92, wherein the receiver calculator generates a plurality of expected signals from a plurality of directions; and wherein the signal correlator separately correlates the combined signal with each of the plurality of expected signals from a plurality of directions to form a plurality of correlation signals.

98. (Original) The receiver of claim 94, wherein the correlator comprises a cross-correlator to correlate the combined signal with the expected signal to form a cross-correlation signal.

99. (Original) The receiver of claim 94, further comprising:

a correlation signal memory to store the correlation signal; and

a signal processor to analyze the correlation signal.

100. (Original) A method detecting a remote object comprising:

simultaneously receiving a plurality of carrier signals in a receiver having a plurality of receive elements, wherein each carrier signal arrives from a corresponding one of a plurality of remote objects;

forming a plurality of receive element signals in the plurality of receive elements;

forming a combined signal derived from the plurality of receive element signals; and

detecting each of the plurality of carrier signals from the combined signal by a different spatial location of each remote object.

101. (Original) The method of claim 100, further comprising

generating a plurality of phase modulation signals; and

phase-modulating each of the plurality of receive element signals with a different one of the phase modulation signals to form a plurality of phase-modulated signals.

102. (Original) The method of claim 101, wherein the phase modulation signals are uncorrelated random phase modulation signals.

103. (Original) The method of claim 100, wherein forming the combined signal comprises combining the plurality of phase-modulated signals into a combined signal.

104. (Original) The method of claim 103, wherein combining comprises summing the plurality of phase-modulated signals into the combined signal.

105. (Original) The method of claim 100, further comprising extracting location information from the detected carrier signals.

106. (Original) The method of claim 100, wherein detecting comprises generating an expected signal; and correlating the combined signal with the expected signal to form a correlation signal.

107. (Original) The method of claim 106, wherein generating an expected signal comprises generating the expected signal as a function of the plurality of phase modulation signals.

108. (Original) The method of claim 106, wherein generating the expected signal comprises generating the expected signal from a particular direction.

109. (Original) The method of claim 108, wherein generating the expected signal comprises generating a plurality of expected signals from a plurality of directions; and wherein correlating the combined signal comprises correlating the combined signal with each of the plurality of expected signals from a plurality of directions to form a plurality of correlation signals.

110. (Original) The method of claim 106, wherein correlating the combined signal with the expected signal comprises cross-correlating the combined signal with the expected signal to form a cross-correlation signal.

111. (Original) The method of claim 106, further comprising:

storing the correlation signal in a correlation signal memory; and

analyzing the correlation signal.

112. (Original) A receiver for detecting a remote object, the receiver comprising:

a plurality of receive elements to simultaneously receive a plurality of carrier signals to form a plurality of receive element signals, wherein each carrier signal arrives from a corresponding one of a plurality of remote objects, wherein each remote object has a different spatial location;

a signal combiner to form a combined signal derived from the plurality of receive element signals; and

a detector to detect each of the plurality of carrier signals from the combined signal by its different spatial location.

113. (Original) The receiver of claim 112, further comprising:

a modulation signal generator to generate a plurality of random phase modulation signals; and

a signal modulator to phase-modulate each of the plurality of receive element signals with a different one of the phase modulation signals to form a plurality of phase-modulated signals.

114. (Original) The receiver of 113, wherein the plurality of random phase modulation signals are uncorrelated random phase signals.

115. (Original) The receiver of claim 113, wherein the signal combiner combines the plurality of phase-modulated signals into a combined signal.

116. (Original) The receiver of claim 115, wherein the signal combiner sums the plurality of phase-modulated signals into the combined signal.

117. (Original) The receiver of claim 112, comprising a signal processor for extracting location information from the detected carrier signal.

118. (Original) The receiver of claim 112, further comprising:

a receiver calculator to generate an expected signal; and

a signal correlator to correlate the combined signal with the expected signal to form a correlation signal.

119. (Original) The receiver of claim 118, wherein the receiver calculator generates the expected signal as a function of the plurality of phase modulation signals.

120. (Original) The receiver of claim 118, wherein the receiver calculator generates the expected signal from a particular direction.

121. (Original) The receiver of claim 120, wherein the receiver calculator generates a plurality of expected signals from a plurality of directions; and wherein the signal correlator correlates the combined signal with each of the plurality of expected signals from a plurality of directions to form a plurality of correlation signals.

122. (Original) The receiver of claim 118, wherein the signal correlator cross-correlates the combined signal with the expected signal to form a cross-correlation signal.

123. (Original) The receiver of claim 118, further comprising:

a memory to store the correlation signal in a correlation signal memory; and

a signal processor to analyze the correlation signal.

124. (Original) A method for a detecting remote object comprising:

receiving a carrier signal from a remote object in a plurality of receive elements to form a plurality of receive element signals, wherein the carrier signal has a modulation rate;

generating a plurality of phase modulation signals, wherein the phase modulation signals have a chipping rate and the chipping rate exceeds the modulation rate; and

phase-modulating each of the plurality of receive element signals with a different one of the phase modulation signals from a plurality of phase-modulated signals.

125. (Original) The method of claim 124, wherein the phase modulation signals are random phase modulation signals.

126. (Original) The method of claim 125, wherein the random phase modulation signals are uncorrelated random phase signals.

127. (Original) The method of claim 124, further comprising combining the plurality of phase-modulated signals into a combined signal.

128. (Original) The method of claim 127, wherein combining comprises summing the plurality of phase-modulated signals into the combined signal.

129. (Original) The method of claim 127, further comprising detecting the carrier signal from the combined signal.

130. (Original) The method of claim 129, further comprising extracting location information from the detected carrier signal.

131. (Original) The method of claim 127, further comprising

generating an expected signal; and

correlating the combined signal with the expected signal to form a correlation signal.

132. (Original) The method of claim 131, wherein generating an expected signal comprises generating the expected signal as a function of the plurality of phase modulation signals.

133. (Original) The method of claim 131, wherein generating the expected signal comprises generating the expected signal from a particular direction.

134. (Original) The method of claim 133, wherein generating the expected signal comprises generating a plurality of expected signals from a plurality of directions;

and wherein correlating the combined signal comprises correlating the combined signal with each of the plurality of expected signals from a plurality of directions to form a plurality of correlation signals.

135. (Original) The method of claim 131, wherein correlating the combined signal with the expected signal comprises cross-correlating the combined signal with the expected signal to form a cross-correlation signal.

136. (Original) The method of claim 131, further comprising:

storing the correlation signal in a correlation signal memory; and

analyzing the correlation signal.

137. (Original) A method for detecting a remote object comprising:

receiving a signal from a remote object in a plurality of receive elements to form a plurality of receive element signals;

generating a plurality of phase modulation signals independent of the direction of the remote object; and

phase-modulating each the plurality of receive element signals with a different one of the plurality of random phase modulation signals to form a plurality of phase-modulated signals.

138. (Original) The method of claim 137, wherein the phase modulation signals are random phase modulation signals.

139. (Original) The method of claim 138, wherein the random phase modulation signals are uncorrelated random phase signals.

140. (Original) The method of claim 137, further comprising combining the plurality of phase-modulated signals into a combined signal.

141. (Original) The method of claim 140, wherein combining comprises summing the plurality of phase-modulated signals into the combined signal.

142. (Original) The method of claim 140, further comprising detecting the carrier signal from the combined signal.

143. (Original) The method of claim 142, further comprising extracting location information from the detected carrier signal.

144. (Original) The method of claim 140, further comprising:

generating an expected signal; and

correlating the combined signal with the expected signal to form a correlation signal.

145. (Original) The method of claim 144, wherein generating an expected signal comprises generating the expected signal as a function of the plurality of phase modulation signals.

146. (Original) The method of claim 144, wherein generating the expected signal comprises generating the expected signal from a particular direction.

147. (Original) The method of claim 146, wherein generating the expected signal comprises generating a plurality of expected signals from a plurality of directions; and wherein correlating the combined signal comprises correlating the combined signal with each of the plurality of expected signals from a plurality of directions to form a plurality of correlation signals.

148. (Original) The method of claim 144, wherein correlating the combined signal with the expected signal comprises cross-correlating the combined signal with the expected signal to form a cross-correlation signal.

149. (Original) The method of claim 144, further comprising:

storing the correlation signal in a correlation signal memory; and

analyzing the correlation signal.